#18 AF 3744



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

| | |
|---|---|
| Applicants: M. Kriss, et al. | I hereby certify that this paper is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Commissioner for Patents Washington, DC 20231 on this date: |
| Serial No.: 09/329,487 | |
| Filed: June 10, 1999 | |
| For: **METHOD AND SYSTEM FOR MARKET RESEARCH DATA MINING** | |
| Group Art Unit: 3744 | December 29, 2003 |
| Examiner: M. Norman | |
| Attorney Docket No.: P 01,0411 | Trevor B. Joike |
| Confirmation No. 8147 | Reg. No. 25, 542 Attorney for Applicants |

**APPELLANTS' BRIEF**

**MAIL STOP APPEAL BRIEF-PATENTS**
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. Real Party in Interest

The real party in interest is A.C. Nielsen Company, a Delaware corporation.

2. Related Appeals and Interferences

There are no other appeals and interferences known to Appellants, Appellants' legal representatives or assignees which will directly affect or be affected by or

have a bearing on the Board's decision in the pending appeal.

3. Status of Claims

Claims 1-49 are pending in the application. Claims 7, 8, 12, 13, 17-21, and 38 have been indicated as allowable, subject to the objection that they depend from rejected claims. The final rejection of claims 1-6, 9-11, 14-16, 22-37, and 39-49 is appealed.

4. Status of Amendments

All amendments have been entered.

5. Summary of the Invention

A product supplier of interest (labeled as $Retailer_1$ only for purposes of this Summary) typically knows the purchases that its customers make from it. $Retailer_1$ also generally knows the sales of other retailers (labeled as $Retailers_{2-n}$ only for purposes of this Summary) because market share information is widely available. However, $Retailer_1$ does not know who makes purchases from $Retailers_{2-n}$ and whether any of these purchasers are the customers of $Retailer_1$. The present invention allows $Retailer_1$ to know more about the purchases that its customers make from $Retailers_{2-n}$.

According to the present invention, estimating the purchases that the customers of $Retailer_1$ make from $Retailers_{2-n}$ is preferably based upon two sources of data. A first source of data provides panelist data. This panelist data is collected from a panel, which is a subset of the customers of $Retailer_1$. The panelist data collected from these panelists includes not only data on the purchases that the panelists make from $Retailer_1$, but

also data on the purchases that the panelists make from $Retailers_{2-n}$. Also collected is a panelist ID uniquely identifying the corresponding panelist.

A second source of data is $Retailer_1$, who acquires data regarding its sales to its customers. This data is referred to herein as customer data. $Retailer_1$ collects customer data from each of its customers in the usual way (such as from its point-of-sale terminals), and also collects the customers' identifications. The customer data and the identification data are stored together so that the customer data are associated with the corresponding customers.

Based upon the panelist data and the customer data, purchases from $Retailers_{2-n}$ made by the customers of $Retailer_1$ can be estimated in accordance with the present invention.

This estimate may be made in accordance with the flow chart shown in Figures 2A and 2B. The panelist data are read at a block 20. A block 22 aggregates the panelist data by panelist ID. For each panelist ID, the data is further aggregated by product category. Product categories are selected based on the products offered by $Retailer_1$. For example, if the product supplier of interest is a grocery store chain, one product category might be carbonated beverages and another might be breakfast cereals.

Within each product category, the panelist data is further divided between purchases that the corresponding panelist made from $Retailer_1$ and purchases that the corresponding panelist made from $Retailers_{2-n}$. The panelist data are also stored in the product categories by trip. Accordingly, if a panelist purchased a product in a product category from $Retailer_x$ during one

trip to $Retailer_x$ and a product in the same product category from $Retailer_x$ during another trip to $Retailer_x$, the panelist's data would contain an entry in the same product category for each trip. Therefore, each panelist ID table includes the number of dollars that the corresponding panelist spent in each product category by trip to $Retailer_1$, and the number of dollars that the corresponding panelist spent in each product category by trip to $Retailers_{2-n}$.

Moreover, the panelist data may be aggregated at the block 22 so that the number of dollars spent with $Retailer_1$ is totaled by panelist ID across all product categories and is included in the table for the corresponding panelist, and so that the number of trips made by each panelist to $Retailer_1$ is totaled across all product categories and is included in the table for the corresponding panelist. Similarly, the data may be aggregated at the block 22 so that the number of dollars spent with $Retailers_{2-n}$ by each panelist is totaled across all product categories and is included in the table for the corresponding panelist, and so that the number of trips made by each panelist to $Retailers_{2-n}$ is totaled across all product categories and is included in the table for the corresponding panelist.

Furthermore, each panelist ID table further includes a $Retailer_1$ share for each product category. In determining this share, the dollars paid by the panelist to $Retailer_1$ in the corresponding product category during all trips covered by the applicable time period are divided by the total dollars paid by the panelist to $Retailer_1$ in all product categories during the same time period. Each panelist ID table includes the dollars paid

by the panelist to $Retailers_{2-n}$ for each product category during all trips covered by the applicable time period.

Finally, the panelist data in each panelist ID table are also similarly aggregated for each department. That is, the panelist data are aggregated in the same way as discussed above but this time by department, where each department covers one or more related product categories.

At a block 24, the customer data (from $Retailer_1$, i.e., the second source) are read, and at a block 26, the customer data are aggregated by customer ID in the same manner as described above in connection with the block 22.

At a block 28, an unrotated principal components factor analysis is performed on the data aggregated at the block 26 (i.e., the aggregated customer data). This analysis produces a factor matrix which is a k x i matrix having k rows and i columns, where k is the number of customer IDs, and where i is the number of factors resulting from the unrotated principal components factor analysis. The unrotated principal components factor analysis collapses the j dimensions in product category space (where j is the number of product categories) down to i dimensions. The value of i may be selected so that each of the i dimensions has a minimum eigenvalue (such as 1.3).

At a block 30, the factor matrix generated at the block 28 is used to score the panelist data. This scoring is accomplished by matrix multiplying the factor matrix produced at the block 28 and the k x j panelist data to produce k x i factors. Accordingly, this matrix multiplication generates a panelist set of factors $F_1$ through $F_i$ for each panelist ID, where $i \leq j$. Thus, a

principal component category may be identical to a product category if the sales in the product category are sufficiently high. The factors $F_1$ through $F_i$ for the panelists are part of the panelist predictor variables discussed below.

At a block 32, the factor matrix generated at the block 28 is similarly used to score the customer data. Again, this scoring is accomplished by matrix multiplying the factor matrix produced at the block 28 and the k x j customer data to produce k x i factors. This matrix multiplication, therefore, generates a customer set of factors $F_1$ through $F_i$ for each customer ID. The factors $F_1$ through $F_i$ for the customers are part of the customer predictor variables discussed below.

For each panelist, other panelist predictor variables are created at a block 34. These other panelist variables are determined from the panelist data and include one or more of the following: $F_1^2$ through $F_i^2$ which are the squares of the corresponding factors $F_1$ through $F_i$ created at the block 30; interdependent factors which include the products of all possible pairs of the factors $F_1$ through $F_i$ created at the block 30 (that is, $F_1 \times F_2$, $F_1 \times F_2$, . . . $F_1 \times F_i$, $F_2 \times F_3$, $F_2 \times F_4$, . . . $F_2 \times F_i$, $F_3 \times F_4$, . . . $F_{i-1} \times F_i$); $T_1$, $T_2$, ..., $T_j$ which are the total number of panelist trips in the corresponding j product categories; $T_1^2$, $T_2^2$, ..., $T_j^2$ which are the squares of $T_1$, $T_2$, ..., $T_j$; TD which is the sum of the dollars spent by the corresponding panelist in all product categories; $TD^2$ which is the square of TD; $CD_1$, $CD_2$, ..., $CD_j$ which are the dollars spent by the corresponding panelist with $Retailer_1$ in the corresponding j product categories; and, $CO_1$, $CO_2$, ..., $CO_j$ which are

the dollars spent with $Retailers_{2-n}$ in the corresponding j product categories.

Other customer predictor variables are created at a block 36 for each customer ID and for each product category in the same way. However, $CO_1$, $CO_2$, ..., $CO_j$, which are the dollars spent by the corresponding customer with $Retailers_{2-n}$ in the corresponding product categories, is to be estimated.

A set of criterion variables $CV_i$ is created at a block 38 for each product category by dividing the panelist IDs into buckets according to their values of $CO_j$. That is, for a first product category, a bucket zero contains all panelist IDs whose corresponding value of $CO_1 = 0$, provided that there are at least a predetermined number (such as 150) of such panelist IDs. The remaining panelist IDs are sorted from highest to lowest according to their values of $CO_1$ and are then divided evenly into buckets one through n for the first product category, with the bucket one containing the remaining panelist IDs whose values of $CO_1$ are lowest (other than zero), with the bucket two containing the remaining panelist IDs whose values of $CO_1$ are next lowest, and so on. Each of the buckets one through n must contain at least the predetermined number of panelist IDs, and each of the buckets one through n must come as close as possible to containing the predetermined number of panelist IDs with the proviso that all of the buckets one through n should contain, as closely as possible, an equal number of panelist IDs.

If the bucket zero is only a few panelist IDs short of the predetermined number, a sufficient number of remaining panelist IDs whose values of $CO_1$ are lowest may be moved into the bucket zero so that the bucket zero

contains the predetermined number of panelist IDs. This movement is made before the sorting and dividing described above. On the other hand, if the bucket zero contains only a few panelist IDs, no panelist IDs are put into the bucket zero and instead all panelist IDs are sorted and divided as described above.

The criterion variable $CV_0$ for the first product category is set equal to the number of panelist IDs in the bucket zero, the criterion variable $CV_1$ for the first product category is set equal to the number of panelist IDs in the bucket one, the criterion variable $CV_2$ for the first product category is set equal to the number of panelist IDs in the bucket two, and so on. This process is then repeated for each of the other product categories so that there is a set of criterion variables for each of the product categories.

At a block 40, the panelist data are split between model data and leave out data. All panelist data associated with a randomly selected r% of the panelist IDs are designated as leave out data. The remaining panelist data are designated as model data.

At a block 42, scoring rules are determined from the model data using a commercially available Wizwhy program. The inputs to the Wizwhy program during this iteration are the predictor variables which meet all of the following three criteria: (i) the predictor variables must correspond to the model data; (ii) the predictor variables must correspond to the panelist IDs in the bucket zero; and, (iii) the predictor variables must correspond to the first product category. Next, the Wizwhy program determines similar scoring rules using the same criteria except that this time the predictor variables are based on the panelist IDs in the bucket

one. An iteration of the Wizwhy program is similarly executed for each of the other buckets. This process is then repeated for each of the other product categories.

At a block 44, new panelist predictor variables are created by applying the scoring rules generated at the block 42 to the model data and the leave out data by bucket and by product category. A block 46 creates new customer predictor variables by applying the scoring rules to the customer data by product category (there are no buckets of customer data). At a block 48, the subroutine Proc Reg of the commercially available program SAS is performed. The Proc Reg subroutine is a linear regression that is performed based only on the model data and that generates an output coefficient matrix. Each row of this matrix contains a set of coefficients for a corresponding product category. The Proc Reg subroutine is performed J times, where J is 50 for example, according to the following equation:

$$model\ depvar = indepvar\ /maxr\quad stop = i \tag{1}$$

where the dependent variable depvar are the criterion variables by product category as determined at the block 38, and where the independent variables indepvar are the predictor variables created at the block 44 by product category. The output coefficient matrix of the Proc Reg subroutine as executed by the block 48 is a linear equation for each product category, where each linear equation has a set of coefficients as contained in a corresponding row of the output coefficient matrix. These linear equations establish a linear relationship by product category between purchases made by panelists from

$Retailer_1$ and purchases made by the panelists from $Retailers_{2-n}$.

The block 50 uses the new customer predictor variables determined at the block 46 as the variables in the linear equations determined at the block 48 in order to estimate the sales by $Retailers_{2-n}$ to the customers of $Retailers_1$ in each of the product categories.

6. Issues Appealed

Issue 1 - Whether claims 1-6, 9-11, 14-16, and 22-36, 39-44, 48, and 49 are unpatentable under 35 U.S.C. §103(a) over Ando, U.S. Patent No. 6,032,125 (hereinafter, the "Ando '125 patent") in view of the Egol article.

Issue 2 - Whether claims 37 and 45-47 are unpatentable under 35 U.S.C. §103(a) over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

7. Grouping of Claims

The appealed claims are treated separately in this appeal.

8. Argument

The Ando '125 Patent

The Ando '125 patent discloses various arrangements for forecasting demand. For example, the Ando '125 patent discloses in column 1, lines 19-30 that, according to one demand forecasting system, a fuzzy operation is applied to sales results that include the sales demand of individual products, the component ratio of the sales, and profit rate in order to calculate an index showing the ease of sales promotion of individual

products. The fuzzy operation is based on the knowledge of an expert in sales plans and an analysis of the fluctuation in the trend of sales.

The Ando '125 patent further discloses in column 1, lines 31-45 that, according to another demand forecasting system, a sample shop is extracted from plural shops. Then, the sales in all shops is presumed based on data collected from the sample shop and ratios of the sales in the sample shop to the sales in all shops and the characteristics of commodities of the sample shop (price zone, target customer age, selling technique etc.). Also, sales transition patterns of final sales are estimated on the basis of the past transition patterns. The estimated sales transition patterns and final sales are stored. A pattern similar to the estimated transition pattern of sales of all shops is selected from the stored sales transition patterns, and the estimated final sales is regarded as the estimated sales of the commodities, and production is planned accordingly.

The Ando '125 patent concludes in column 1, lines 46-63 that, in these demand forecasting systems, demand is forecasted by analyzing the trend of past sales, and that the main goal of such systems is to apply statistical analysis techniques and econometric modeling. However, if product trends change in short cycles, the data used for analysis rapidly become old, and the precision of the forecasts suffers. In order to maintain a high degree of precision for the forecast, maintenance of the forecasting software, of the knowledge, and of the conditions is required frequently. Such maintenance is difficult.

The Ando '125 patent discloses in column 1, line 66 through column 3, line 3 that its invention is intended to solve these problems by storing a plurality of models of neural networks including a model that forecasts demand from data of the past several months, a model that forecasts demand from data of the same period of the previous year, and a model that forecasts demand from both the latest data and data of the same period of the previous year. Sales are fed into a model so that the model learns during a short period of time, such as weekly, to predict demand depending on sales trends.

The Egol Article

The Egol article describes a survey in which 1000 customers of a supplier are questioned about the two things that these customers consider most important about purchasing products. The 1000 customers of the supplier are also questioned about the purchases that they make from other suppliers. This information is used to determine the appeal of new product offerings to the customers of the supplier of interest.

The Besser Article

The Besser article relates to a consideration of the relationship between the success of small businesses and their level of social responsibility.

Issue 1

Independent claim 1 is directed to a method of estimating purchases made by customers of a supplier of interest (e.g., $Retailer_1$ as used in the Summary above) from other suppliers (e.g., $Retailers_{2-n}$ as used in the Summary above). According to the method, panelist data

regarding purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers are read. The panelists are a subset of the customers, and the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers. A relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the other suppliers is determined. Customer data regarding purchases made by the customers from the supplier of interest are read. Based upon the customer data and the relationship, the purchases made by the customers from the other suppliers are estimated.

As can be seen from the description of the Ando '125 patent above, the Ando '125 patent discloses various arrangements for forecasting demand. However, demand forecasting is not relevant to the invention of independent claim 1 for at least two reasons. First, independent claim 1 is limited to estimating past sales (i.e., made purchases), whereas demand forecasting predicts future sales (sales that have not yet been made). Second, demand forecasting does not estimate the purchases by particular customers (i.e., the customers of a product supplier of interest as recited in independent claim 1), but rather predicts purchases by all consumers of all suppliers.

The Examiner counters by arguing that the Ando '125 patent is not strictly concerned with future sales. To support this assertion, the Examiner focuses in on column 1, lines 33-35 of the Ando '125 patent.

However, while the sample shop is created based on past sales extracted from the plural shops, these past

sales are not used to estimate the purchases that the customers of the sample shop have made from the plural suppliers. Instead, the past sales from the plural shops are distilled in the sample shop and are used to forecast future sales (i.e., demand). Moreover, the ratios disclosed in the Ando '125 patent are not estimates of the purchases made by the customers of the sample shop from the other suppliers. The sample shop has no customers, and certainly has no customers who make purchases from it as required by independent claim 1. Instead, these ratios merely ensure that the sample shop is representative of each of the plural shops.

The Examiner looks to Yamamoto patent for support. However, the Yamamoto patent, which was cited but not applied by the Examiner, is not pertinent to the invention of independent claim 1. The Yamamoto patent merely discloses forecasting demand based on past sales in order to control production to meet the forecasted demand and was cited in the Ando '125 patent merely for that disclosure. The Yamamoto patent does not disclose the estimation of past sales as set out in independent claim 1.

The Examiner specifically cited column 8, lines 1-36 of the Yamamoto patent. This portion of the Yamamoto patent discloses that POS terminals 1a, 1b, 1c . . . are installed at sample retail outlets representing a given percentage of all such retail outlets. A production size setting means 2 includes a scale-up estimating routine 5, a demand forecast routine 6 and a production size determining routine 7. The scale-up estimating routine 5 receives sales information from the POS terminals 1a, 1b, 1c . . . at the sample retail outlets and scales up these received sales based on a

ratio of the number of products purchased by all outlets to the number of products purchased by the sample outlets and based on a deviation factor.

This scaled-up information is then used to forecast demand, and the forecasted demand is used to determine production. However, there is no suggestion in the Yamamoto patent to use this scaled-up information to determine the number of products purchased from the other retailers (i.e., all retailers except the sample retailers) based on sales by both the other retailers and the sample retailers to the customers of the sample retailers.

Accordingly, the Yamamoto patent is not relevant to the invention of independent claim 1.

Moreover, the Ando '125 patent does not disclose a supplier of interest as recited in independent claim 1. The Examiner, however, points to column 1, lines 31-45 of the Ando '125 patent and argues (i) that the sample shop is the supplier of interest of independent claim 1, (ii) that the plural shops are the other suppliers of interest of independent claim 1, and (iii) that purchases by the customers of the sample shop (the supplier of interest) from other suppliers (the plural shops) are estimated. However, this argument is based on a misinterpretation of the Ando '125 patent.

The sample shop is not a supplier of interest as that term is used in independent claim 1. The sample shop has no customers, and customers do not make purchases from it. Instead, the sample shop is extracted from the plural shops. That is, the sample shop does not have data that it has generated on its own; rather, its data is derived from the plural shops. The sample shop has no identity that is separate from the plural shops.

In essence, the sample shop does not exist. It is merely a mathematical model to distill the data from the plural shops.

For example, the express words in the first clause of the paragraph at column 1, lines 31-45 of the Ando '125 patent make it clear that the sample shop is extracted from the plural shops. Thus, the data from the plural shops is used to create the sample shop such that the sample shop does not have either customers or customers that make purchases from it. Accordingly, rather than storing the data from many (plural) shops, the plural shops may be represented by a statistical model, i.e., the sample shop. Once the sample shop is created, data is collected from the sample shop in order to forecast demand.

Moreover, the remaining clauses of this paragraph also make it is clear that the sample shop is merely extracted from the plural shops and does not have either customers or customers that make purchases from it. Thus, the next clause in this paragraph (i.e., the sales amount in all shops is presumed from the sales amount in the sample shop on the basis of the sales amount ratio in the sample shop to the sales amount in all shops and the characteristics of commodities of the sample shop (price zone, target customer age, selling technique etc.)) merely means that, in extracting (creating) the sample shop, the sales of the plural shops are put into the sample shop on a proportional basis.

The next clause in this paragraph (i.e., while sales transition patterns of plural types and final sales estimated amount on the basis of the past transition of sales results are stored) states that final sales amounts of the plural shops are estimated from sales trends and

that these sales trends and the final estimated sales are stored.

The next clause in this paragraph (i.e., a pattern similar to the estimated transition pattern of sales amount of all shops is selected from the stored sales transition patterns, and the final sales estimated amount is regarded as the sales estimated amount of the commodities) states that a sales trend representative of the plural shops is selected and the final estimated sales are regarded as the final commodities sales.

The last clause in this paragraph (i.e., the production is planned accordingly (Japanese Patent Publication No. 8-16950)) states that the selected trend and the final commodities sales are used in production planning. In other words, demand is forecasted and is used to determine production requirements.

Accordingly, the sample shop does not, in the words of independent claim 1, represent a supplier of interest, but merely represents a statistically smaller embodiment of the plural suppliers. Thus, there is no supplier of interest disclosed in the Ando '125 patent.

Furthermore, if sales data from the sample shop and from the plural shops are used in the method of independent claim 1 as suggested by the Examiner, the method of independent claim 1 would not make any sense. The method of independent claim 1 determines the purchases made by the customers of a supplier of interest from other suppliers based on (i) the purchases made by customers of the supplier interest from the supplier of interest and (ii) the purchases made by a subset of the customers of the supplier interest from the supplier of interest and from other suppliers.

The data in the sample shop and the data in the plural shops is related by the ratios disclosed in column 1, lines 31-45 of the Ando '125 patent. If these ratios are relied upon by the Examiner as the estimation of the purchases of the "customers" of the sample shop, there would be absolutely no need for the panelist data recited in independent claim 1.

Moreover, the data that the Examiner is using includes only the purchases made from the other suppliers (i.e., the plural shops) and a subset of these same purchases (i.e., the sample shop). The sample shop has no sales of its own. Thus, the data disclosed in the Ando '125 patent cannot be used by itself to determine the purchases made by the customers of one of the plural shops from the other shops. Indeed, there is no disclosure in the Ando '125 patent that the data of one supplier is segmented out from the data of the plural shops so that it can be used to establish the relationship recited in independent claim 1. The data of the sample shop certainly does not represent this data because the sample shop data is extracted from all of the plural shops.

Therefore, the data that the Examiner is using cannot be used to implement the invention of independent claim 1.

In addition, because the sample shop contains merely a subset of the data provided by the plural shops, the ratio of the sample shop data to the plural shop data does not yield the relationship recited in independent claim 1.

Finally, as should be understood from the above, the data in the sample shop is derived from the plural suppliers. Therefore, the data in the sample shop

is not independent of the data of the plural shops as required by independent claim 1.

As can be seen from all of the above, the Ando '125 patent has no relevance to independent claim 1 and does not teach or suggest the invention of independent claim 1.

The Examiner at least recognizes that the Ando '125 patent does not disclose the use of a panel drawn from the customers of a supplier of interest so as to acquire panelist data. Therefore, the Examiner cites the Egol article.

However, as discussed above, the arrangement disclosed in the Ando '125 patent does not require panelist data as the Examiner has interpreted the Ando '125 patent. Therefore, the Ando '125 patent and the Egol article cannot be logically combined to meet the limitations of independent claim 1.

Moreover, while the Egol article describes a survey using a panel of 1000 customers of a supplier of interest, the data collected from the panel does not suggest collecting data relating to purchases made by the panel from the supplier of interest and from other suppliers. Instead, the panel is questioned about the two things that the panel considers most important about purchasing products. The panel is also questioned about the purchases that the panel makes from other suppliers. However, it is unlikely that the questions about the purchases that the panel makes from other suppliers would be useful in estimating purchases because, given the nature of the questions about the two things that the panel considers most important about purchasing products, the information gleaned about the purchases that the

panel makes from other suppliers is more likely qualitative than quantitative.

Furthermore, there is no disclosure or suggestion in the Egol article that any information that it gleans from the survey is used to estimate purchases of any kind. Instead, the information that is collected is merely used to determine the appeal of new product offerings to the customers of the supplier of interest. Thus, the Examiner concludes incorrectly that purchases from the other suppliers by the customers of the supplier of interest are being estimated. They are not. This data is only being used to determine the appeal of new product offerings.

Additionally, the Egol article contains no description or suggestion of collecting data both from the 1000 customer panel and from the larger customer base of the supplier of interest from which the panel is formed as a subset.

The Examiner points to lines 19, 21, and 22 of the Egol article as disclosing that the survey answers are used to estimate the purchases from the other suppliers by the customers of the supplier of interest. Instead, this portion of the Egol article merely discloses that 1000 customers of a supplier are questioned about the two things that the customers consider most important about purchasing products and that these same 1000 customers are also questioned about the purchases that they make from other suppliers. There is no disclosure or suggestion in the Egol article of estimating the purchases from other suppliers by the customers of a supplier of interest, or of collecting data on purchases made by the panel from both a supplier of interest and from other suppliers, or of collecting

data regarding purchases made of the larger customer base of a supplier of interest from the supplier of interest.

Accordingly, the Egol article does not suggest modifying the sample shop as disclosed in the Ando '125 patent so that the sample data is independent of the plural shops. Therefore, the Egol article does not suggest modifying the teachings in the Ando '125 patent to meet independent claim 1.

Also, the Egol article is directed to determining product appeal and the Ando '125 patent is directed to demand forecasting. Thus, neither reference is related to estimating purchases made by the customers of a supplier of interest from other suppliers as required by independent claim 1. Therefore, neither reference suggests a combination that would meet the invention of independent claim 1.

Moreover, neither the Egol article nor the Ando '125 discloses or suggests collecting data on purchases made by a panel from both a supplier of interest and from other suppliers. Therefore, the combination of the Egol article and the Ando '125 patent cannot teach or suggest the invention of independent claim 1.

Furthermore, neither the Egol article nor the Ando '125 discloses or suggests collecting data regarding purchases made of a larger customer base of a supplier of interest from the supplier of interest.

For all of the reasons give above, independent claim 1 is not unpatentable over the Ando '125 patent in view of the Egol article. Therefore, the combination of the Egol article and the Ando '125 patent cannot teach or suggest the invention of independent claim 1.

In the Advisory Action, the Examiner asserts that the sample shop is an actual existing shop apart

from the other shops. This assertion, however, ignores the express disclosure of the Ando '125 patent that the sample shop is extracted from the plural shops. Were it otherwise, and contrary to the assertion of the Examiner, the sample shop could not be used to estimate the sales in the plural shops. Each shop is different, and the sample shop is merely meant to represent a proportional blend of all shops so that production, which will be used to meet the demand of all shops, can be easily forecasted.

Also in the Advisory Action, the Examiner reasserts that the Egol article is cited, not for a disclosure of estimating the purchases made by the customers of a supplier of interest from other suppliers, but for a disclosure of the use of panel to determining purchasing trends regarding both the supplier of interest and other suppliers. This assertion, however, misses the mark because independent claim 1 is not directed to trends, which implies future sales, but past sales. Thus, because the Ando '125 patent does not disclose estimating past sales but only future sales, the combination of the Ando '125 patent and the Egol article does not teach or suggest the invention of independent claim 1. Moreover, the Egol article does not even disclose purchasing trends. It merely discloses using surveys to determine product appeal.

Independent claim 30 is directed to a method of estimating purchases made by customers of a supplier of interest from other suppliers. According to the method, customer data regarding purchases made by the customers from the supplier of interest are read, and panelist data regarding purchases made by panelists from the supplier of interest and purchases made by the panelists from the

other suppliers are also read. The panelists are a subset of the customers, and the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers. Purchases made by the customers from the other suppliers are estimated based upon the customer data and the panelist data.

As discussed above, neither the Ando '125 patent nor the Egol article suggests an arrangement for estimating past sales (made purchases). The Ando '125 patent relates to demand forecasting so that future production may be planned, and the Egol article relates to the determination of customer preferences. Accordingly, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 30.

As also discussed above, neither the Ando '125 patent nor the Egol article suggests collecting purchase data regarding purchases made from the supplier of interest by the customers of the supplier of interest. The Ando '125 patent discloses that purchase data relating to purchases made from other suppliers by customers of the other supplier are collected, and that a sample shop is set up by extracting data from the plural shops. However, the sample shop does not have its own customers, and no customers make purchases from the sample shop. The Egol article similarly discloses no collection of data relating to the purchases from a supplier of interest by customers of the supplier of interest. Accordingly, for this reason also, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 30.

As further discussed above, neither the Ando '125 patent nor the Egol article suggests collecting purchase data relating to purchases made from both the supplier of interest and from the other suppliers by a subset of the customers of the supplier of interest. The Ando '125 patent certainly does not disclose that purchase data is collected from a subset of the customers of the sample shop relating to purchases that this customer subset makes from both the sample shop and the plural shops. The Egol article similarly discloses no collection of data from the panel relating to the purchases that the panel makes from both a supplier of interest and other suppliers. Accordingly, for this further reason, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 30.

Accordingly, because the invention of independent claim 30 is not suggested by the Ando '125 patent and the Egol article, independent claim 30 is not unpatentable over the Ando '125 patent in view of the Egol article.

Independent claim 39 is directed to a method of estimating purchases made by customers of a supplier of interest. According to the method, a linear relationship between purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers is determined. The purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers. Then, purchases by the customers from the other suppliers are estimated based upon the linear relationship.

As discussed above, neither the Ando '125 patent nor the Egol article suggests an arrangement for estimating past sales. (As a matter of grammar, sales that are made are past sales.) The Ando '125 relates to demand forecasting so that future production may be planned, and the Egol article relates to the determination of customer preferences. Accordingly, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 39.

As also discussed above, neither the Ando '125 patent nor the Egol article suggests forming a linear relationship based on purchases made from both a supplier of interest and from other suppliers by a panel (subset) of the customers of the supplier of interest. The Ando '125 patent certainly does not disclose using in any way purchases that a subset of the customers of the sample shop made from both the sample shop and the plural shops. The Egol article similarly does not disclose using purchases that a panel formed from the customers of a supplier of interest and other suppliers. Accordingly, for this reason also, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 39.

Accordingly, because the invention of independent claim 39 is not suggested by the Ando '125 patent and the Egol article, independent claim 39 is not unpatentable over the Ando '125 patent in view of the Egol article.

Independent claim 43 is directed to a system for estimating purchases made by customers of a supplier of interest where the system includes analyzing means and estimating means. The analyzing means analyzes purchases made by the customers from the supplier of interest and

purchases made by panelists from both the supplier of interest and other suppliers. The panelists are a subset of the customers of the supplier of interest, and the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers. The estimating means estimates purchases by the customers from the other suppliers based upon the analyzed purchases.

As discussed above, neither the Ando '125 patent nor the Egol article suggests an arrangement for estimating past sales. The Ando '125 relates to demand forecasting so that future production may be planned, and the Egol article relates to the determination of customer preferences. Accordingly, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 43.

As also discussed above, neither the Ando '125 patent nor the Egol article suggests collecting purchase data regarding purchases made from the supplier of interest by the customers of the supplier of interest. The Ando '125 patent discloses that purchase data relating to purchases made from other suppliers by customers of the other supplier are collected, and that a sample shop is set up by extracting data from the plural shops. However, the sample shop does not have its own customers, and no customers make purchases from the sample shop. The Egol article similarly discloses no collection of data relating to the purchases from a supplier of interest by customers of the supplier of interest. Accordingly, for this reason also, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 43.

As further discussed above, neither the Ando '125 patent nor the Egol article suggests collecting purchase data relating to purchases made from both the supplier of interest and from the other suppliers by a subset of the customers of the supplier of interest. The Ando '125 patent certainly does not disclose that purchase data is collected from a subset of the customers of the sample shop relating to purchases that this customer subset makes from both the sample shop and the plural shops. The Egol article similarly discloses no collection of data from the panel relating to the purchases that the panel makes from both a supplier of interest and other suppliers. Accordingly, for this further reason, the combination of the Ando '125 patent and the Egol article does not suggest the invention of independent claim 43.

Accordingly, because the invention of independent claim 43 is not suggested by the Ando '125 patent and the Egol article, independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article.

Dependent claim 2 recites that step a) of independent claim 1 comprises aggregating the panelist data and the customer data according to categories. Neither the Ando '125 patent nor the Egol article discloses aggregating panelist data or customer data according to categories. Indeed, the Ando '125 patent does not disclose panelist data at all. The Egol article, while it discloses the use of a panel, does not disclose or suggest aggregating the panelist data in any respect.

Accordingly, because the invention of dependent claim 2 is not disclosed or suggested by the Ando '125

patent and the Egol article, dependent claim 2 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner takes "official notice" that aggregating data according to categories is a common statistical technique that would have been obvious to apply in estimating competitor sales. However, the inventions of the rejected claims are not directed to the estimation of competitor sales (as in market share) but rather are directed to an estimation of competitor sales to particular people, i.e., the sales by competitors to the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 2 is erroneous and the Examiner's rejection of dependent claim 2 must therefore fail.

Furthermore, even assuming that it is common practice to aggregate sales by category, the Examiner has not shown that it is common practice to aggregate the particular sales as recited in dependent claim 2. Indeed, the Examiner's assertion with respect to the rejection of dependent claim 2 is a mere conclusion not supported by application of art or logical reasoning.

For this reasons also, dependent claim 2 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 3 recites that the aggregated data of dependent claim 2 includes a number of dollars that each panelist spent by category with the supplier of interest and a number of dollars that each panelist spent by category with the other suppliers. Neither the Ando '125 patent nor the Egol article discloses that the data aggregated by category includes a number of dollars that each panelist spent by category with the supplier of

interest and a number of dollars that each panelist spent by category with the other suppliers. Indeed, the Ando '125 patent does not disclose panelist data at all much less aggregating panelist data by the number of dollars that each panelist spent by category with the supplier of interest and the number of dollars that each panelist spent by category with the other suppliers. The Egol article, while it discloses the use of a panel, does not disclose or suggest aggregating panelist data according to categories and also does not disclose aggregating the data by the number of dollars that each panelist spent by category with the supplier of interest and the number of dollars that each panelist spent by category with the other suppliers.

Accordingly, because the invention of dependent claim 3 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 3 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner takes "official notice" that aggregating dollars spent is inherent in the notion of market share. However, as discussed above, the inventions of the rejected claims are not directed to the estimation of market share, but rather are directed to an estimation of competitor sales to the customers of a particular supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 3 is erroneous and the Examiner's rejection of dependent claim 3 must therefore fail.

Additionally, even assuming that it is common practice to aggregate dollars, the Examiner has not shown that it is common practice to aggregate dollars as recited in dependent claim 3. As before, the Examiner's

assertion with respect to the rejection of dependent claim 3 is a mere conclusion not supported by application of art or logical reasoning.

For this reason also, dependent claim 3 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 4 recites that the aggregated data of dependent claim 2 includes share for the supplier of interest and share for the other suppliers by category. Neither the Ando '125 patent nor the Egol article discloses that the data aggregated by category includes share for the supplier of interest and share for the other suppliers by category. Indeed, neither the Ando '125 patent nor the Egol article discloses share at all.

Accordingly, because the invention of dependent claim 4 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 4 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner takes "official notice" that share is inherent in the notion of market share. Still again, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to a particular supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 4 is erroneous and the Examiner's rejection of dependent claim 4 must therefore fail.

Moreover, even assuming that it is common practice to include share information in aggregated data, the Examiner has not shown that it is common practice to include share information in aggregated data as recited in dependent claim 4. Again, the Examiner's assertion

with respect to the rejection of dependent claim 4 is a mere conclusion not supported by application of art or logical reasoning.

For this reason also, dependent claim 4 is patentable over the Ando '215 patent in view of the Egol article.

Dependent claim 5 is directed to performing an unrotated principal components factor analysis on at least one of the aggregated panelist data and the aggregated customer data. Neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis on at least one of aggregated panelist data and aggregated customer data. Indeed, neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis at all.

Accordingly, because the invention of dependent claim 5 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 5 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner states that unrotated principal components factor analyses are well known, as admitted by appellants. However, the Examiner does not go on to show that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 5. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

For this reason also, dependent claim 5 is patentable over the Ando '215 patent in view of the Egol article.

Dependent claim 6 recites that predictor variables are determined based upon at least one of the aggregated panelist data and the aggregated customer data. While the Ando '125 patent discloses a mathematical relationship (ratios) between the sample shop and the plural shops, the Ando '125 patent does not disclose or suggest determining predictor variables to be used with the mathematical relationship or otherwise. The Egol article also does not disclose or suggest the use of predictor variables.

Accordingly, because the invention of dependent claim 6 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 6 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to apply in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to estimating competitor sales, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 6 is erroneous and the Examiner's rejection of dependent claim 6 must therefore fail.

Furthermore, neither the Ando '125 patent nor the Egol article discloses the use of regression analyses.

For this reason also, dependent claim 6 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 9 recites that the predictor variables include factors $F_1$ through $F_i$ resulting from the performing step. As disclosed in the present application, factors $F_1$ through $F_i$ are produced by matrix multiplying a factor matrix and certain data, such as the panelist data and/or the customer data. The factor matrix is produced by the unrotated principal components factor analysis and is a k x i matrix where k is the number of customer or panelist IDs and i is the number of factors resulting from the unrotated principal components factor analysis.

The Examiner has not pointed to any prior art that shows predictor variables including these factors. The Examiner merely argues that labeling predictor variables as $F_1$ through $F_i$ does not make an invention patentable. However, in making this argument, the Examiner has neglected to interpret dependent claim 9. When the Examiner does so interpret dependent claim 9, the Examiner will find that the factors $F_1$ through $F_i$ are those that result from an operation on customer data and/or panelist data. The Examiner has not shown any operation on customer data and/or panelist data and, therefore, cannot have shown the factors $F_1$ through $F_i$.

Without such as showing, dependent claim 9 would not have been obvious over the Ando '125 patent in view of the Egol article.

For the reasons given above, dependent claim 9 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 10 recites that the predictor variables also include the squares of the factors $F_1$ through $F_i$. Neither the Ando '125 patent nor the Egol

article discloses determining predictor variables having factors $F_1$ through $F_i$ and then squaring those factors.

Accordingly, because the invention of dependent claim 10 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 10 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner argues that squaring predictor variables is shown by the Pindyck text (the Examiner previously referenced page 102). While the Pindyck text shows that variables can be squared, the Pindyck text does not disclose the squaring of predictor variables or the squaring of the factors $F_1$ through $F_i$ as defined in the application.

Therefore, a premise of the Examiner's rejection of dependent claim 10 is erroneous and the Examiner's rejection of dependent claim 10 must therefore fail.

For the reasons given above, dependent claim 10 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 11 recites that the predictor variables also include interdependent factors based upon products of the factors $F_1$ through $F_i$. Neither the Ando '125 patent nor the Egol article discloses determining predictor variables having factors $F_1$ through $F_i$ and then determining interdependent factors based upon those factors.

Accordingly, because the invention of dependent claim 11 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 11 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner argues that including interdependent factors based upon products of the factors $F_1$ through $F_i$ is shown by the Pindyck text (the Examiner previously referenced page 103). While the Pindyck text shows that variables can be multiplied, the Pindyck text does not disclose the multiplying of predictor variables or multiplying of the factors $F_1$ through $F_i$ as defined in the application.

Therefore, a premise of the Examiner's rejection of dependent claim 11 is erroneous and the Examiner's rejection of dependent claim 11 must therefore fail.

For the reasons given above, dependent claim 11 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 14 recites that the predictor variables include a total number of dollars spent in a category. Neither the Ando '125 patent nor the Egol article discloses predictor variables that include a total number of dollars spent in a category.

Accordingly, because the invention of dependent claim 14 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 14 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the Ando '125 patent does disclose a total number of dollars spent in a category, if it is assumed that category is broadly interpreted to mean product. (See column 1, lines 31-32 of the Ando '125 patent which disclose that sales amounts can be collected by product.)

However, the Ando '125 patent does not disclose that such sales amounts are used as predictor variables

and, therefore, does not disclose that the sales amounts are used as predictor variables. For example, the Ando '125 patent does disclose a mathematical relationship (ratios) between the sample shop and the plural shops. However, the Ando '125 patent does not disclose or suggest using any predictor variables with the mathematical relationship or otherwise. The Egol article also does not disclose or suggest the use of predictor variables.

Accordingly, because neither the Ando '125 patent nor the Egol article discloses the use of sales amounts or other data as predictor variables, dependent claim 14 is not unpatentable over the Ando '125 patent in view of the Egol article.

Dependent claim 15 recites that the predictor variables also include a square of the total number of dollars. Neither the Ando '125 patent nor the Egol article discloses predictor variables that include the square of dollars.

Accordingly, because the invention of dependent claim 15 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 15 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner argues that squaring predictor variables is well known as shown in the Pindyck text. While the Pindyck text shows that variables can be squared, this reference does not disclose the squaring of predictor variables or the squaring of the total number of dollars.

Therefore, a premise of the Examiner's rejection of dependent claim 15 is erroneous and the

Examiner's rejection of dependent claim 15 must therefore fail.

For the reasons given above, dependent claim 15 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 16 recites the step of determining criterion variables based upon at least one of the aggregated panelist data and the aggregated customer data. Neither the Ando '125 patent nor the Egol article discloses determining criterion variables based upon at least one of aggregated panelist data and aggregated customer data.

Accordingly, because the invention of dependent claim 16 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 16 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the use of criterion variables is a well know technique and that appellants are simply claiming a specific application of such a well known technique.

However, even if appellants are using a well known technique in a specific application, such use can still be patentable. The Examiner has not, by the simple assertion that appellants are making use of a well known technique in a specific application, made out a *prima facie* case of obviousness.

For this reason, dependent claim 16 is patentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner has pointed to no data disclosed in either the Ando '125 patent or the Egol article that can be used as criterion variables. For

this reason also, the Examiner has not made out a *prima facie* case of obviousness.

Therefore, for the reasons given above, dependent claim 16 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 22 recites the step of performing an unrotated principal components factor analysis on at least one of the panelist data and the customer data. Neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis on at least one of panelist data and customer data. Indeed, neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis at all.

Accordingly, because the invention of dependent claim 22 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 22 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner states that unrotated principal components factor analyses are well known, as admitted by appellants. However, the Examiner does not go on to make out a *prima facie* case that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 22. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

For this reason also, dependent claim 22 is patentable over the Ando '215 patent in view of the Egol article.

Dependent claim 23 recites the step of determining predictor variables based upon at least one of the panelist data and the customer data. While the

Ando '125 patent discloses a mathematical relationship (ratios) between the sample shop and the plural shops, the Ando '125 patent does not disclose or suggest determining predictor variables to be used with the mathematical relationship or otherwise. The Egol article also does not disclose or suggest the use of predictor variables.

Accordingly, because the invention of dependent claim 23 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 23 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to apply in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to estimating competitor sales, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 23 is erroneous and the Examiner's rejection of dependent claim 23 must therefore fail.

Furthermore, neither the Ando '125 patent nor the Egol article discloses the use of regression analyses.

For this reason also, dependent claim 23 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 24 recites the step of determining criterion variables based upon at least one of the panelist data and the customer data. Neither the Ando '125 patent nor the Egol article discloses

determining criterion variables based upon at least one of panelist data and customer data.

Accordingly, because the invention of dependent claim 24 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 24 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the use of criterion variables is a well know technique and that appellants are simply claiming a specific application of such a well known technique.

However, even if appellants are using a well known technique in a specific application, such use can still be patentable. The Examiner has not, by the simple assertion that appellants are making use of a well known technique in a specific application, made out a *prima facie* case of obviousness.

For this reason, dependent claim 24 is patentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner has pointed to no data disclosed in either the Ando '125 patent or the Egol article that can be used as criterion variables. For this reason also, the Examiner has not made out a *prima facie* case of obviousness.

Therefore, for the reasons given above, dependent claim 24 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 25 recites the step of performing a linear regression based upon the predictor variables and the criterion variables in order to generate a linear relationship between the purchases made by the panelists from the supplier of interest and the

purchases made by the panelists from the other suppliers. Neither the Ando '125 patent nor the Egol article discloses performing a linear regression based upon predictor variables and criterion variables in order to generate a linear relationship between purchases made by panelists from a supplier of interest and purchases made by the panelists from other suppliers.

Accordingly, because the invention of dependent claim 25 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 25 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the use of predictor variables and criterion variables in regression analyses is well known in the art, pointing to the Pindyck text. The Pindyck text does not, however, disclose or suggest variables based upon panelist data or customer data. Likewise, none of the other references cited by the Examiner disclose or suggest variables based upon panelist data or customer data. Moreover, the Examiner does not offer any suggestion or reasoning as to why it would have been obvious to combine linear regressions based on predictor and criterion variables with the disclosure of either the Ando '125 patent or the Egol article.

In this regard, the Examiner points to the Examiner's discussion with respect to independent claim 1. However, the motivation that the Examiner relies on with respect to independent claim 1 is fabricated based on appellants' own disclosure. The Ando '125 patent does not disclose or suggest that panelist data would fulfill any need that is not already satisfied by the customer data that it already discloses. The Ando '125 patent

discloses the collection of customer data in order to estimate future customer demand so that production can be planned. However, future customer demand does not pertain to the purchases that have already been made and that are being estimated by the invention of independent claim 1. Moreover, the Examiner has not suggested how the estimated of the future customer demand can be benefited by using panelist data.

Accordingly, the Examiner has suggested no motivation that is applicable to dependent claim 25.

For all of the reasons given above, dependent claim 25 is patentable over the Ando '125 patent in view of the Egol article.

In this rejection, the Examiner goes on to assert that it would have been obvious to perform a linear regression based upon the predictor variables and the criterion variables in order to determine market share for the reasons given in the rejection of independent claim 1. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 25 is erroneous and the Examiner's rejection of dependent claim 25 must therefore fail.

Therefore, for this reason also, dependent claim 25 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 26 recites that step d) of independent claim 1 comprises the step of applying the customer data to the linear relationship in order to estimate the purchases made by the customers from the

other suppliers. Neither the Ando '125 patent nor the Egol article discloses applying customer data to a linear relationship in order to estimate purchases made by customers from other suppliers.

Accordingly, because the invention of dependent claim 26 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 26 is not unpatentable over the Ando '125 patent in view of the Egol article.

In this rejection, the Examiner asserts that the invention of dependent claim 26 would have been obvious, pointing to the discussion regarding market share/purchases made by customers from other suppliers. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales that have been made to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 26 is erroneous and the Examiner's rejection of dependent claim 26 must therefore fail.

Therefore, for this reason also, dependent claim 26 is patentable over the Ando '125 patent in view of the Egol article.

In the rejection of dependent claim 26, the Examiner seems to be equating market share with the purchases that have been made by the customers of a product supplier from other product suppliers. However, market share simply does not yield information about the purchases made by the customers of a product supplier from other product suppliers. Moreover, market share does not suggest determining information about the

purchases made by the customers of a product supplier from other product suppliers.

Therefore, dependent claim 26 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 27 recites the step of performing an unrotated principal components factor analysis on the customer data. Neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis on customer data. Indeed, neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis at all.

Accordingly, because the invention of dependent claim 27 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 27 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner states that unrotated principal components factor analyses are well known, as admitted by appellants. However, the Examiner does not go on to show that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 27. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

For this reason also, dependent claim 27 is patentable over the Ando '215 patent in view of the Egol article.

Dependent claim 28 recites the step of performing a linear regression based upon the panelist data in order to generate a linear relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the

other suppliers. Neither the Ando '125 patent nor the Egol article discloses performing a linear regression based upon panelist data in order to generate a linear relationship between purchases made by panelists from a supplier of interest and purchases made by the panelists from other suppliers.

Accordingly, because the invention of dependent claim 28 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 28 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the use of predictor variables and criterion variables in regression analyses is well known in the art, pointing to the Pindyck text. The Pindyck text does not, however, disclose or suggest variables based upon panelist data or customer data. Likewise, none of the other references cited by the Examiner disclose or suggest variables based upon panelist data or customer data. Moreover, the Examiner does not offer any suggestion or reasoning as to why it would have been obvious to combine linear regressions based on predictor and criterion variables with the disclosure of either the Ando '125 patent or the Egol article.

In this regard, the Examiner points to the Examiner's discussion with respect to independent claim 1. However, the motivation that the Examiner relies on with respect to independent claim 1 is fabricated based on appellants' own disclosure. The Ando '125 patent does not disclose or suggest that panelist data would fulfill any need that is not already satisfied by the customer data that it already discloses. The Ando '125 patent discloses the collection of customer data in order to

estimate future customer demand so that production can be planned. However, future customer demand does not pertain to the purchases that have already been made and that are being estimated by the invention of independent claim 1. Moreover, the Examiner has not suggested how the estimated of the future customer demand can be benefited by using panelist data.

Accordingly, the Examiner has suggested no motivation that is applicable to dependent claim 28.

For all of the reasons given above, dependent claim 28 is patentable over the Ando '125 patent in view of the Egol article.

In this rejection, the Examiner goes on to assert that it would have been obvious to perform a linear regression based upon the predictor variables and the criterion variables in order to determine market share for the reasons given in the rejection of independent claim 1. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 28 is erroneous and the Examiner's rejection of dependent claim 28 must therefore fail.

Therefore, for this reason also, dependent claim 28 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 29 recites that step d) of independent claim 1 comprises the step of applying customer data to the linear relationship. Neither the Ando '125 patent nor the Egol article discloses applying customer data to a linear relationship.

Accordingly, because the invention of dependent claim 29 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 29 is not unpatentable over the Ando '125 patent in view of the Egol article.

In this rejection, the Examiner asserts that the invention of dependent claim 29 would have been obvious, pointing to the discussion regarding market share/purchases made by customers from other suppliers. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales that have been made to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 29 is erroneous and the Examiner's rejection of dependent claim 29 must therefore fail.

Therefore, for this reason also, dependent claim 29 is patentable over the Ando '125 patent in view of the Egol article.

In the rejection of dependent claim 29, the Examiner seems to be equating market share with the purchases that have been made by the customers of a product supplier from other product suppliers. However, market share simply does not yield information about the purchases made by the customers of a product supplier from other product suppliers. Moreover, market share does not suggest determining information about the purchases made by the customers of a product supplier from other product suppliers.

Therefore, dependent claim 29 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 31 recites that step c) comprises the step of aggregating the customer data and the panelist data according to categories. Neither the Ando '125 patent nor the Egol article discloses aggregating panelist data or customer data according to categories. Indeed, the Ando '125 patent does not disclose panelist data at all. The Egol article, while it discloses the use of a panel, does not disclose or suggest aggregating the panelist data in any respect.

Accordingly, because the invention of dependent claim 31 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 31 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner takes "official notice" that aggregating data according to categories is a common statistical technique that would have been obvious to apply in estimating competitor sales. However, the inventions of the rejected claims are not directed to the estimation of competitor sales (as in market share) but rather are directed to an estimation of competitor sales to particular people, i.e., the sales by competitors to the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 31 is erroneous and the Examiner's rejection of dependent claim 31 must therefore fail.

Furthermore, even assuming that it is common practice to aggregate sales by category, the Examiner has not shown that it is common practice to aggregate the particular sales as recited in dependent claim 31. Indeed, the Examiner's assertion with respect to the rejection of dependent claim 31 is a mere conclusion not supported by application of art or logical reasoning.

For this reasons also, dependent claim 31 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 32 recites that step c) of independent claim 30 comprises the step of performing an unrotated principal components factor analysis on at least a portion of the aggregated data. Neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis on at least one a portion of aggregated data. Indeed, neither the Ando '125 patent nor the Egol article discloses performing an unrotated principal components factor analysis at all.

Accordingly, because the invention of dependent claim 32 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 32 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner states that unrotated principal components factor analyses are well known, as admitted by appellants. However, the Examiner does not go on to show that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 32. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

For this reason also, dependent claim 32 is patentable over the Ando '215 patent in view of the Egol article.

Dependent claim 33 recites that step c) of independent claim 30 comprises the step of determining predictor variables based upon the performing step and upon at least a portion of the aggregated data. While

the Ando '125 patent discloses a mathematical relationship (ratios) between the sample shop and the plural shops, the Ando '125 patent does not disclose or suggest determining predictor variables to be used with the mathematical relationship or otherwise. The Egol article also does not disclose or suggest the use of predictor variables.

Accordingly, because the invention of dependent claim 33 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 33 is not unpatentable over the Ando '125 patent in view of the Egol article.

Moreover, the Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to apply in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to estimating competitor sales, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 33 is erroneous and the Examiner's rejection of dependent claim 33 must therefore fail.

Furthermore, neither the Ando '125 patent nor the Egol article discloses the use of regression analyses.

For this reason also, dependent claim 33 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 34 recites that step c) of independent claim 30 comprises the step of performing a linear regression on the predictor variables in order to generate a linear equation for each category. Neither

the Ando '125 patent nor the Egol article discloses performing a linear regression on predictor variables in order to generate a linear equation.

Accordingly, because the invention of dependent claim 34 is not disclosed or suggested by the Ando '125 patent and the Egol article, dependent claim 34 is not unpatentable over the Ando '125 patent in view of the Egol article.

The Examiner asserts that the use of predictor variables in regression analyses is well known in the art, pointing to the Pindyck text. The Pindyck text does not, however, disclose or suggest variables based upon panelist data or customer data. Likewise, none of the other references cited by the Examiner disclose or suggest variables based upon panelist data or customer data. Moreover, the Examiner does not offer any suggestion or reasoning as to why it would have been obvious to combine linear regressions based on predictor with the disclosure of either the Ando '125 patent or the Egol article.

In this regard, the Examiner points to the Examiner's discussion with respect to independent claim 1. However, the motivation that the Examiner relies on with respect to independent claim 1 is fabricated based on appellants' own disclosure. The Ando '125 patent does not disclose or suggest that panelist data would fulfill any need that is not already satisfied by the customer data that it already discloses. The Ando '125 patent discloses the collection of customer data in order to estimate future customer demand so that production can be planned. However, future customer demand does not pertain to the purchases that have already been made and that are being estimated by the invention of independent

claim 1. Moreover, the Examiner has not suggested how the estimated of the future customer demand can be benefited by using panelist data.

Accordingly, the Examiner has suggested no motivation that is applicable to dependent claim 34.

For all of the reasons given above, dependent claim 34 is patentable over the Ando '125 patent in view of the Egol article.

In this rejection, the Examiner goes on to assert that it would have been obvious to perform a linear regression based upon the predictor variables in order to determine market share for the reasons given in the rejection of independent claim 1. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 34 is erroneous and the Examiner's rejection of dependent claim 34 must therefore fail.

Therefore, for this reason also, dependent claim 34 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 35 recites that step c) of independent claim 30 comprises the step of estimating the purchases made by the customers from the other suppliers in each category by plugging the customer data into the linear equation for each category. In rejecting dependent claim 35, the Examiner points to the rejection of independent claim 1 and dependent claim 25. Appellants' discussion of the rejection of independent claim 1 and dependent claim 25 apply equally well to the rejection of dependent claim 35.

Accordingly, dependent claim 35 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claims 40 and 42 recite that step b) of independent claim 39 comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest. In these rejections, the Examiner points to the Examiner's discussion in the rejection of independent claim 1. This discussion centers around market share. However, as discussed above, the inventions of the rejected claims are not directed to market share. Therefore, a premise of the Examiner's rejection of dependent claims 40 and 42 is erroneous and the Examiner's rejection of dependent claims 40 and 42 must therefore fail.

Therefore, for this reason, dependent claims 40 and 42 are patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 41 recites that the panelists used to determine the linear relationship recited in independent claim 39 are a subset of the customers of the supplier of interest. None of the art cited by the Examiner disclose or suggest a method that is based on the customers of a supplier of interest and a panel formed from a subset of these customers.

Therefore, for this reason, dependent claim 41 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 44 recites that the analyzing means of independent claim 43 comprises means for performing an unrotated principal components factor analysis based upon purchase data. In rejecting

dependent claim 44, the Examiner points to the rejection of dependent claim 5. Appellants' discussion of the rejection of dependent claim 5 applies equally well to the rejection of dependent claim 44.

Accordingly, dependent claim 44 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 48 recites that the analyzing means of independent claim 43 comprises means for determining a linear relationship between purchases made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers. In rejecting dependent claim 48, the Examiner points to the rejection of independent claims 1 and 39. Appellants' discussion of the rejection of independent claims 1 and 39 apply equally well to the rejection of dependent claim 48.

Accordingly, dependent claim 48 is patentable over the Ando '125 patent in view of the Egol article.

Dependent claim 49 recites that the estimating means of independent claim 43 estimates the purchases by the customers from the other suppliers by plugging the purchases by the customers from the supplier of interest into the linear relationship. In rejecting dependent claim 49, the Examiner points to the rejection of independent claims 1 and 39. Appellants' discussion of the rejection of independent claims 1 and 39 apply equally well to the rejection of dependent claim 49.

Accordingly, dependent claim 49 is patentable over the Ando '125 patent in view of the Egol article.

Issue 2

Dependent claim 37 recites that step c) of independent claim 30 comprises the step of creating a

linear equation based upon results from the unrotated principal components factor analysis. In rejecting dependent claim 37, the Examiner cites the first three full paragraphs on page of the Besser article.

The portion of the Besser article discloses that business commitment to a community can be measured based on a series of questions adapted from a scale of seven items developed to measure worker commitment to organizations. These seven items were reduced to a single business commitment variable using the principal component factor analysis. Factor scores were generated by the regression method.

Another set of questions was used to determine the amount of socially responsible behavior exhibited by the sample businesses. Businesses were asked to indicate how frequently they provided the specified kinds of assistance to the community. The variable created from unrotated principal component factor scaling of these items was termed business support. These businesses were also asked to indicate whether they had provided personal leadership in local civic or church organizations and whether they had held elected public office since becoming owner or manager. Both of these questions were scored dichotomously (no = 1, yes = 2) and summed to create a personal leadership variable ranging from 2 to 4.

Businesses were asked to rate their success on a scale of 1 to 5. These ratings were associated with other indicators of business success. The significance of the relationships of both the business commitment variable and the community assistance variable with business success offers some indication of business success.

The Examiner has not made any argument suggesting the obviousness of combining this disclosure in the Besser article with the disclosures in the Ando '125 patent and the Egol article in any respect much less in such a way as to meet the limitations of dependent claim 37. The Examiner has merely asserted that the claims provide no particulars of the equation or how it is applied. However, such an assertion does not fulfill the Examiner's obligation to make out a *prima facie* case of obviousness.

Therefore, because the Examiner has not made out a *prima facie* case of obviousness, the Examiner has not established that dependent claim 37 would have been obvious over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

For this reason, dependent claim 37 is patentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Moreover, the Besser article does not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based purchases made by the customers from the supplier of interest.

Likewise as shown above, the Ando '125 patent and the Egol article do not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based on purchases made by the customers from the supplier of interest.

Accordingly, the combination of the Ando '125 patent, the Egol article, and the Besser article cannot teach the invention of independent claim 30, independent claim 30 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Because independent claim 30 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article, dependent claim 37 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Dependent claim 45 recites that the analyzing means of independent claim 43 comprises means for determining a linear relationship based upon results from the unrotated principal components factor analysis. In rejecting dependent claim 45, the Examiner again cites the first three full paragraphs on page of the Besser article.

The Examiner has not made any argument suggesting the obviousness of combining this disclosure in the Besser article with the disclosures in the Ando '125 patent and the Egol article in any respect much less in such a way as to meet the limitations of dependent claim 45. The Examiner has merely asserted that the claims provide no particulars of the equation or how it is applied. However, such an assertion does not fulfill the Examiner's obligation to make out a *prima facie* case of obviousness.

Therefore, because the Examiner has not made out a *prima facie* case of obviousness, the Examiner has not established that dependent claim 45 would have been

obvious over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

For this reason, dependent claim 45 is patentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Moreover, the Besser article does not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based purchases made by the customers from the supplier of interest.

Likewise as shown above, the Ando '125 patent and the Egol article do not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based on purchases made by the customers from the supplier of interest.

Accordingly, the combination of the Ando '125 patent, the Egol article, and the Besser article cannot teach the invention of independent claim 43, independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Because independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article, dependent claim 45 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Dependent claim 46 recites that the linear relationship of dependent claim 45 relates purchases made

by the panelists from the supplier of interest to purchases made by the panelists from the other suppliers. In rejecting dependent claim 46, the Examiner points to the rejection of independent claim 39. Appellants' discussion of the rejection of independent claim 39 applies equally well to the rejection of dependent claim 46.

Accordingly, dependent claim 46 is patentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Moreover, as shown above, the Besser article does not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based purchases made by the customers from the supplier of interest.

As also shown above, the Ando '125 patent and the Egol article do not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based on purchases made by the customers from the supplier of interest.

Accordingly, the combination of the Ando '125 patent, the Egol article, and the Besser article cannot teach the invention of independent claim 43, independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Because independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article,

dependent claim 46 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Dependent claim 47 recites that the estimating means of independent claim 43 estimates the purchases by the customers of a supplier from other suppliers based upon the purchases by the customers from the supplier of interest and upon the linear relationship. In rejecting dependent claim 47, the Examiner points to the rejection of independent claim 1. Appellants' discussion of the rejection of independent claim 1 applies equally well to the rejection of dependent claim 47.

Accordingly, dependent claim 47 is patentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

Moreover, as shown above, the Besser article does not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based purchases made by the customers from the supplier of interest.

As also shown above, the Ando '125 patent and the Egol article do not disclose estimating the purchases made by a supplier's customers from other suppliers based on the purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers and based on purchases made by the customers from the supplier of interest.

Accordingly, the combination of the Ando '125 patent, the Egol article, and the Besser article cannot teach the invention of independent claim 43, independent claim 43 is not unpatentable over the Ando '125 patent in

view of the Egol article and further in view of the Besser article.

Because independent claim 43 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article, dependent claim 47 is not unpatentable over the Ando '125 patent in view of the Egol article and further in view of the Besser article.

9. Conclusion

For the foregoing reasons, reversal of the Final Rejection is respectfully requested.

10. Appendix

The Appendix containing a copy of the claims involved in this appeal is attached hereto.

This brief is being filed in triplicate as required by 37 C.F.R. §1.192.

The fee set forth in 37 C.F.R. §1.17(c) is enclosed herein by check. The Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fee which may be required to Deposit Account No. 50-1519.

Respectfully submitted,

Schiff, Hardin & Waite
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606
(312) 258-5500

By: _____
Trevor B. Jolke
Reg. No: 25,542

December 29, 2003

## APPENDIX

1. A method of estimating purchases made by customers of a supplier of interest from other suppliers, wherein the method is performed on a computer, and wherein the method comprises the following steps:

a) reading panelist data regarding purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers, wherein the panelists are a subset of the customers, and wherein the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers;

b) determining a relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the other suppliers;

c) reading customer data regarding purchases made by the customers from the supplier of interest; and,

d) based upon the customer data and the relationship, estimating the purchases made by the customers from the other suppliers.

2. The method of claim 1 wherein step a) comprises the step of aggregating the panelist data according to categories, and wherein step (c) comprises the step of aggregating the customer data according to categories.

3. The method of claim 2 wherein the aggregated data includes a number of dollars that each panelist spent with the supplier of interest by category

and a number of dollars that each panelist spent with the other suppliers by category.

4. The method of claim 3 wherein the aggregated data includes share for the supplier of interest and share for the other suppliers by category.

5. The method of claim 2 comprising the step of performing an unrotated principal components factor analysis on at least one of the aggregated panelist data and the aggregated customer data.

6. The method of claim 5 comprising the step of determining predictor variables based upon on at least one of the aggregated panelist data and the aggregated customer data.

9. The method of claim 6 wherein the predictor variables include factors $F_1$ through $F_i$ resulting from the performing step.

10. The method of claim 9 wherein the predictor variables also include the squares of the factors $F_1$ through $F_i$.

11. The method of claim 9 wherein the predictor variables also include interdependent factors based upon products of the factors $F_1$ through $F_i$.

14. The method of claim 6 wherein the predictor variables include a total number of dollars spent in a category.

15. The method of claim 14 wherein the predictor variables also include a square of the total number of dollars.

16. The method of claim 6 comprising the step of determining criterion variables based upon at least one of the aggregated panelist data and the aggregated customer data.

22. The method of claim 1 comprising the step of performing an unrotated principal components factor analysis on at least one of the panelist data and the customer data.

23. The method of claim 22 comprising the step of determining predictor variables based upon on at least one of the panelist data and the customer data.

24. The method of claim 23 comprising the step of determining criterion variables based upon on at least one of the panelist data and the customer data.

25. The method of claim 24 comprising the step of performing a linear regression based upon the predictor variables and the criterion variables in order to generate the relationship, wherein the relationship is a linear relationship.

26. The method of claim 25 wherein step d) comprises the step of applying the customer data to the linear relationship in order to estimate the purchases made by the customers from the other suppliers.

27. The method of claim 1 comprising the step of performing an unrotated principal components factor analysis on the customer data.

28. The method of claim 27 comprising the step of performing a linear regression based upon the panelist data in order to generate the relationship, wherein the relationship is a linear relationship.

29. The method of claim 28 wherein step d) comprises the step of applying the customer data to the linear relationship.

30. A method of estimating purchases made by customers of a supplier of interest from other suppliers, wherein the method is performed on a computer, and wherein the method comprises the following steps:

a) reading customer data regarding purchases made by the customers from the supplier of interest;

b) reading panelist data regarding purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers, wherein the panelists are a subset of the customers, and wherein the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers;

c) based upon the customer data and the panelist data, estimating purchases made by the customers from the other suppliers.

31. The method of claim 30 wherein step c) comprises the step of aggregating the customer data and the panelist data according to categories.

32. The method of claim 31 wherein step c) comprises the step of performing an unrotated principal components factor analysis on at least a portion of the aggregated data.

33. The method of claim 32 wherein step c) comprises the step of determining predictor variables based upon the performing step and upon at least a portion of the aggregated data.

34. The method of claim 33 wherein step c) comprises the step of performing a linear regression on the predictor variables in order to generate a linear equation for each category.

35. The method of claim 34 wherein step c) comprises the step of estimating the purchases made by the customers from the other suppliers in each category by plugging the customer data into the linear equation for each category.

36. The method of claim 30 wherein step c) comprises the step of performing an unrotated principal components factor analysis based upon at least one of the panelist data and the customer data.

37. The method of claim 36 wherein step c) comprises the step of creating a linear equation based upon results from the unrotated principal components factor analysis.

39. A method of estimating purchases made by customers of a supplier of interest, wherein the method

is performed on a computer, and wherein the method comprises the following steps:

a) determining a linear relationship between purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers, wherein the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers; and,

b) estimating purchases by the customers from the other suppliers based upon the linear relationship.

40. The method of claim 39 wherein step b) comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest.

41. The method of claim 39 wherein the panelists are a subset of the customers.

42. The method of claim 41 wherein step b) comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest.

43. A system for estimating purchases made by customers of a supplier of interest comprising:

analyzing means for analyzing purchases made by the customers from the supplier of interest and purchases made by panelists from both the supplier of interest and other suppliers, wherein the panelists are a subset of the customers of the supplier of interest, and wherein

the purchases made by the panelists from the supplier of interest are independent of the purchases made by the panelists from the other suppliers; and,

estimating means for estimating purchases by the customers from the other suppliers based upon the analyzed purchases.

44. The system of claim 43 wherein the analyzing means comprises means for performing an unrotated principal components factor analysis based upon purchase data.

45. The system of claim 44 wherein the analyzing means comprises means for determining a linear relationship based upon results from the unrotated principal components factor analysis.

46. The system of claim 45 wherein the linear relationship relates purchasers made by the panelists from the supplier of interest to purchases made by the panelists from the other suppliers.

47. The system of claim 45 wherein the estimating means estimates the purchases by the customers from the other suppliers based upon the purchases by the customers from the supplier of interest and upon the linear relationship.

48. The system of claim 43 wherein the analyzing means comprises means for determining a linear relationship between purchasers made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers.

49. The system of claim 48 wherein the estimating means estimates the purchases by the customers from the other suppliers by plugging the purchases by the customers from the supplier of interest into upon the linear relationship.